R E P O R T R E S U M E S

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A TEACHING PROGRAM FOR INDUSTRIAL TECHNOLOGY, THE WORLD OF CONSTRUCTION. (TITLE SUPPLIED).

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DESCRIPTORS- *INDUSTRIAL ARTS, *CONSTRUCTION, COURSE ORGANIZATION, *CLASS ACTIVITIES, *UNITS OF STUDY (SUBJECT FIELDS), GRADE 7, INDUSTRIAL ARTS CURRICULUM PROJECT, INDUSTRIAL TECHNOLOGY,

THE DAILY SCHEDULE IS GIVEN FOR THE INDUSTRIAL ARTS CURRICULUM PROJECT'S FIRST YEAR COURSE IN CONSTRUCTION. INFORMATION TOPICS AND ALLOTTED CLASSTIME ARE GIVEN FOR 170 DAYS OF INSTRUCTION. CATEGORIES IN THE SCHEDULE ARE -- (1) READING ASSIGNMENT, (2) WORKBOOK, (3) PRESENTATION, (4) DISCUSSION, (5) STUDENT ACTIVITY, (6) LAB MANUAL, (7) LAB DISCUSSION, AND (8) EVALUATION. COMPANION DOCUMENTS ARE VT 003 145, VT 003 202, VT 003 203, AND VT 003 204. (EM)

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ATTACHMENT C

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industrial arts curriculum project

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
1	Preface to the Student		Lecture: 1. Purposes of Ind. Arts 2. Purposes of first year course in construction 3. How to use course materials (25)	Student questions (10)	Receives course materials (e.g. text and laboratory manual) (10)			
2	Tools and Society (35)	1. Study questions 2. Identify examples of contemporary environmental control (15)	Film: Tools and Society (20)	1. Student questions 2. Film (5)	Comparison of human energy expended without tools or simple machines and human energy expended with them. Pulley - Lever Wheel and shaft Block and tackle(10)	Record comparative force expended with and without tools or simple machines (5)	1. Interpretation of results 2. Application (5)	
3	Producing Economic Goods (30)	1. Study questions 2. Classify economic goods (15)	Lecture: Producing economic goods (10)	Student questions (5)	Comparison of electric drill, hand drill, and bow drill to illustrate efficiency in producing industrial material goods (20)	1. Record comparative times 2. Formula for man's material welfare (5)	Efficiency and the formula for man's material welfare (5)	
4	Industry in the Economic System (30)	Study questions (15)	Lecture: Industry in the Economic System (10)	Student questions (5)	Analysis of input-output system of constructed project (20)	Record elements of the system (5)	Review system and its elements (5)	
5	The Technology of Industry (30)	1. Study questions 2. Interview person employed in an industrial organization (20)	Film: The Technology of Industry (30)	1. Film 2. Student Report of Interviews (15)				

Ohio State Univ., Columbus, Ohio, Center for Vocational and Technical Education, Industrial Arts Curriculum Project, A Teaching Program for Industrial Technology, The World of Construction, Curriculum Project, Title Supplied. Industrial Arts Attachment (c). Jul-66

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DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
6	Story of Construction (35)	1. Study questions 2. Classify construction projects (10)	Film: Story of Construction (35)	1. Film 2. Workbook (10)				
7	Major construction practices (35)	1. Study questions 2. List major construction practices (15)	Filmslide Major construction practices (15)	1. Student questions 2. Filmslide 3. Workbook (5)	Students arrange cards with construction activities printed on them into logical order (15)		Arrangement of construction activities by students (10)	
8	The Creation of a Building (40)	1. Study questions 2. List construction activities (10)	Film: Creation of a Building (25)	1. Film 2. Workbook (5)	Examine model of constructed object to determine activities needed for their construction (10)		Activities needed for construction of models (5)	
9 (Optional Day)	A Masterpiece of Construction "The Dam" (40)	1. Study questions 2. List construction activities (10)	Film: Story of Glen Canyon Dam (35)	1. Film 2. Wookbook (10)				
10	The Construction Field (20)	1. Review questions 2. List what qualifications and education needed for a specific job in the construction field (25)	Film: Men in the Construction Field (25)	Workbook (20)				

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11	Introduction to Industrial Management (10)	Study questions. Application: Identify how you plan, organize and control an activity. (5)	Film: "Introduction to Industrial Management." (30)	1. Clarify principle points in film. 2. Expand on material in film through questions by students 3. Discuss student examples from workbook assignment. (15)				
12	Introduction to Planning (5)	Study questions. (5)	Lecture: Introduction to Planning. (25)	Questions about planning elements and their relationships. (20)				
13	Formulating (15)	Study questions. (5)	Illustrated lecture: Formulating and its elements. (15)	Clarify: 1. Elements of formulating. 2. Responsibilities of owner, architect, and builder (5)	Given a construction project the students will list possible goals, objectives, policies and programs. (20)	Record goals, objectives, policies, and programs. (5)		
14	Researching (15)	Study questions. (5)	Film: "Researching" (15)	Clarify need for retrieving, describing, and the available resources. (10)	Given a construction project, students will locate information pertaining to the project. (15)	Record findings. (5)		
15				Express importance of research and forecasting and who does it. (15)	1. Experiment with various mixtures of concrete by slump tests. 2. Test strength of boards-horizontally and vertically. (25)	Record results. (5)		

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16		Programmed section on introduction to visual communication (15)	Lecture: Introduction to Visual Communication. (10)	Discuss problems encountered in sketching an object from an oral description. (5)	1. Students are given the illustration of the object they previously sketched from oral description. 2. They now sketch the object by visually copying. (10)	Record sketch. (5)	Compare sketches done from oral description with visually copied sketch with the original sketch. Discuss the differences found. (10)	
17		Programmed section on introduction to sketching. (20)	Lecture: Introduction to Sketching. (5)	Discuss object shape and proportion by use of board and model examples. (10)	1. Divide class into teams for team spelldown. 2. Students sketch construction objects (20)	Record sketches.	Compare shape and proportion of student sketches with originals. Discuss differences and problems encountered (10)	
18		Programmed section on fundamental elements in sketching. (15	Demonstration: 1. On use and care of materials and equipment. 2. Constructing of straight lines and smooth curves. (15)		Students sketch from models of construction projects. (15)	Record sketches. (5)	Students analyze the elements which fit together to form the shape of the object sketched. (10)	
19		Programmed section on elements in sketching. (10)	Demonstration: Sketching of elements. (10)	Sketching elements and how they form shapes. (5)	Programmed section on elements in workbook. (20)		Discuss the sketching of elements as they appear in the program. (10)	
20		Programmed section on Measurement. (how to read a rule) (15)	Illustrated Lecture: size description in sketching. (10)	Review section in workbook on reading a rule with an enlarged rule. (10)	1. Measure class size. 2. Sketch and dimension plan. (10)	Record results. (5)	Discuss floor plan stressing why we need size description. (10)	

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
21		Programmed section on pictorial and multiview sketching. (20)	Illustrated lecture: Compare objects drawn as theeye sees them with photographs. Demonstration: on board pictorial representation. (20)		Sketch pictorial from model. (15)	Record sketch. (5)	Comparison of student sketches with projected solution. (5)	
22		Programmed problems in pictorial representation. (20)	Illustrated lecture. (10)		Sketch a perspective from a model. (25)	Record sketch. (5)	Comparison of student sketches with projected solution. (5)	
23			Illustrated lecture: 1. Multi-view form by use of collapsible models. 2. Relationship of multi-view to pictorial. (15)	Clarify multi-view and pictorial. (5)	Sketch multiple views from a model. (10)	Record sketch. (5)	Compare and discuss the differences between the multi-view sketch made and an illustration of the object pictorially. (10)	
24		Programmed section: From idea to sketch. (20)	Reinforcement of multi-view sketching by reviewing workbook problems. Introduce place for models in representing ideas visually. (15)		Students given a construction object difficult to sketch. (20)	Record sketch. (5)	Teacher shows model of object to illustrate need for 3-dimensional work. (5)	
25		Programmed section: From sketch to production. (20)	Film:"From Sketch to Product" (25)	1.Review film 2. Relate film to past experience and what is to come. (20)				

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
26	Introduction to Designing. (10)	Study questions. (5)	Film:"Designing in Construction." (15)	Review points in film. (5)	Sketch intersection, overpass, underpass, cloverleaf. (15)	Record solution. (5)	Selected presentation of solution. (5)	
27	Determining Function. Preparing Performance Specifications. (10)	Study questions. Give examples of function in two construction objects near your home. (10)	Illustrated lecture: 1. Determining functions. 2. Preparing performance specifications. (10)	Clarify concepts. (5)	Given a design problem: 1. The student will determine functions. 2. The student will prepare performance specifications. (15)	Record results. (10)	Formulate set of functions and their respective performance specifications. (5)	
28	Conceiving a Solution in Principle. Conceiving Alternate Solutions. (10)	Study questions. Explain how one goes about developing a solution in principle. (10)	Illustrated lecture: 1. Conceiving a Solution in Principle 2. Conceiving Alternate solutions. (10)	Clarify concepts. (5)	Given a design problem: 1. The students will conceive a solution in principle. 2. The students will conceive alternate solutions. (25)	Record sketches. (5)		
29	Selecting Solution. (5)	Study questions. (5)	Illustrated lecture: Explain significance of guidelines (criteria). (10)	Establish criteria for final selection of solution by class members. (5)	1. Presenting and analyzing the several solutions. 2. Selection of final solution (best). (30)			
30	Communicating Design Solution. (5)	Study questions. (5)	Illustrated lecture: Communicating design solutions. (10)		Sketching final solution for presentation. (35)			

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31	Developing in Three Dimensions. (15)	Study questions. (10)	Illustrated lecture: developing in three dimensions. (30)	Clarification of types of models. (15)				
32	Introduction to Engineering. (5)	Study questions. (5)	Film:"Engineering Projects." (30)	Explain major points in film. (15)				
33	Detailing Design Communication. (10)	Study questions. (5)	Illustrated lecture: Detailing design communication. (15)	Clarification of need for working drawings. (5)	Students attempt to draw details from a construction project. (20)	Record sketch. (5)		
34	Detailing specifications and standards. (10)	Study questions. (5)	Illustrated lecture: Detailing specifications and standards. (15)	Clarification of need for specification. (5)	Students attempt to write specs. for a construction project. (15)	Record results. (5)	Discuss common elements in specs. and how they are made use of. (5)	
35	Estimating Scheduling (15)	Study questions. (10)	Illustrated lecture: Estimating Scheduling (15)	Clarification of need for: estimations and schedules. (5)	Students make rough estimates of a construction project. (20)	Record calculations. (5)		

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
36	Introduction to Organizing. (10)	Study questions. (5)	Illustrated lecture: Introduction to Organizing. (15)	Organization pattern from principal on down and their responsibilities. (10)	Students will organize their own organization pattern for a construction job. (15)	Record results. (5)		
37	Structuring the Organization. (15)	Study questions. (10)	Illustrated Lecture: Structuring the Organization. (15)	Clarify the need for phases in Structuring the Organization, and how they are done. (5)	Students will list all necessary work tasks for completing a given construction project. (15)	Record results. (5)	Compare answers and establish set tasks for a construction job. (5)	
38	Supplying Resources (15)	Study questions. (5)	Illustrated Lecture: Supplying Resources (15)		Given plans and elevations of a construction project the students will fill out requisition forms for materials specifying quality. (30)			
39			Lecture: Review of Planning and Organizing (20)	Students clarify points that they do not understand. (10)	Continued student activity on requisitioning. (15)			
40								Test covering Planning and Organizing. 30 Min. Test; 15 Min. Review.

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
41	Introduction to Controlling (15)	Study questions. (5)	Film: "Introduction to Controlling" (25)	Clarify points in film on controlling practices. (10)				Pass back test papers and allow students to correct errors. Done at beginning of Day 41 (10)
42	Directing (15)	Study questions. (5)	Lecture: Directing (10)	Clarify major points in Directing. (5)	Student groups select supervisor to oversee workmen in a game. (30)			
43	Monitoring (25)	Study questions. (10)	Illustrated lecture: Monitoring. (10)	Clarify major points in monitoring. (5)	Use models and slides of construction job errors, allow students to identify errors. Examine faulty workmanship of details & point out where the error is. (25)	Record results. (5)		
44			Illustrated lecture: Timekeeping and Inventorying. (10)	Clarify use of sheets through questions. (5)	Students will take inventory of materials in shop which are available for a project in production, checking quality and amount. (25)	Record results. (5)		
45	Reporting (10)	Study questions. (5)	Illustrated lecture: Reporting. (15)	Clarify importance of reporting through questions. (5)	Student makes a report from observations of model and inventory of materials in shop. (20)	Record results. (5)		

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46	Correcting (15)	Study questions. (5)	Lecture: Correcting (20)	Clarification of major points in Correcting. (5)			Review material for final test. (20)	
47								Final Exam on Planning, Organizing and Controlling. (45)
48	Optional Day				To be used along with Days 16-25.			
49	Optional Day				To be used along with Day 28.			
50	Optional Day				To be used along with Day 29.			

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
51	Optional Day				To be used along with Day 31.			
52	Optional Day				To be used along with Day 32.			

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
53	Changing the Form of Materials (20)	Identify the functions of a structure. Indicate the major phases of construction. Indicate the ways in which man changes the forms of materials (15)	Review introductory text reading. Clarify terms, definitions, purposes (20) Watch film on changing the form of materials for overview (25)					
54	Preparing the Site (15)	Indicate the kinds of sites, types of soil, identify topographical features - identify the stages in preparing the site (15)	Review reading, clarify as necessary (15) Watch film on preparing the site (15)	Observe pictures of sites in various conditions - discuss sites and preparation needed before construction (15)				
55	Setting Up Temporary Facilities (10)	Identify the purposes of setting up temp. utilities. Indicate some problems associated with setting up temp. facilities (10)	Review reading - clarify as necessary (10) Watch film on the types of facilities which might be needed (15)	Referring to pictures of sites shown previous day - discuss problems of setting up temp. facilities as related to same. (20)				
56	Providing Temporary Access and Protection (30)	Define terms, list purposes. On plan-view diagrams of "raw" sites, sketch in the appropriate methods & locations of temp. access & protection as needed (20)	Review reading. Clarify terms and procedures. (10) Watch film for overview. (10)	Discuss the provision of temp. access and protections (10)	Using model sites, designate accesses & protective features. Mark same on model using model parts provided. (10)	Record activity in space provided (5)		
57	Establishing Temporary Shelters (15)	Define terms, identify equipment. Describe practices with sketches (20)	Review reading. Clarify terms and practices. (15)	Discuss methods of providing shelter (10)	Given model sites & structural types, select appropriate shelters needed and deploy on models. Simulate placement of shelters on model sites. (15)	Record activity in space provided (5)		

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
58	Providing Temporary Utilities (20)	Identify types of utilities to be provided - give use and purpose (15)	Review reading, clarify where necessary (10) Watch film and demonstration on utilities (10)		Connect up to dummy water supply electric supply. Simulating practices of plumbing & wiring on full scale equipment (20)	Describe briefly lab activities in space provided (5)		
59	Clearing the Site (10)	Identify the purpose and scope of clearing. Identify types of obstacles commonly cleared (10)	Review reading clarify as necessary (10) Watch film on clearing for overview (15)	Types of obstacles - discuss the types of sites where these would be most likely to be found (15)		Record notes on discussion. Answer related questions (5)		
60	Reducing Obstacles (35)	Define terms. List, identify & associate equipment (15)	Review reading, clarify terms and methods. (10) Watch film on demolishing, salvaging, & extracting (10)	Discuss demolishing, salvaging and extracting. (10) Look at pictures of slides of site conditions, discuss appropriate methods of dealing with conditions. (10)		Record methods selected to deal with (picture) conditions (5)		
61	Handling Materials (20)	Define terms, list, identify & associate equipment and methods (10)	Review reading. Clarify terms and methods. (20)	Discuss the handling of materials. (10) Look at pictures of materials resulting from clearance operations. Select appropriate methods of handling. (10)		Record method selected in blank in workbook next to the material (5)		
62	Surveying For Construction (20)	Give purpose & define terms, list instruments and describe process (15)	Review reading. Clarify terms and procedures. Distinguish between types of survey. (10)	Discuss surveying while demonstrating proper use of equipment. Look at short film for overview. (15)	Inspect instruments. Use instruments to locate stations & reference & mark to lab features. (15)	Record locations of reference points with dimensions on sketch in workbook. (5)		

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
63	Earthworking (10)	Indicate the major steps in working earth. Identify purposes & scope, identify types of soil (15)	Review reading - clarify as necessary Watch film for overview. (15)		Using stations established previous day, establish offset lines on lab floor. Mark same with chalk and/or tape. (20)	Record activity in space provided. Answer to checklist in lab book. Mark dimensions on sketch plan in workbook. (10)		
64	Mobilizing Equipment (15)	List & identify equipment. Describe methods of mobilizing and setting up. (15)	Review reading, clarify methods, demonstrate equipment with models. Watch film for overview. (20)		Use instruments to locate control points on lab features (15) Observe & manipulate model equipment used in earthworking. (5)	Record with sketches & on chart provided the location of control points. (5)		
65	Earthmoving (30)	Define terms - describe methods and list equipment (15)	Review reading, clarify terms. Show model equipment & describe functions (15)	Discuss reading. (10) Look at pictures of typical site condition Analyze and discuss appropriate means of earthmoving. (10)	Check accuracy of work as marked, using record in workbook, find points (10)			
66	Protecting Existing Utilities and Structures (15)	Define terms, list and describe methods and principles. (15)	Review reading. Clarify terms, principles and methods. Refer to model equipment. (10)	Look at pictures of typical site condition - analyze & discuss appropriate means of dealing with situation shown (20)	Deploy model equipment on model sites having same characteristics as pictures (10)	Record in workbook (5)		
67	Shaping and Stabilizing Earthworks (35)	As above (20)	As above (10)	As above (20)	As above (10)	Record in workbook (5)		

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
68 (Optional Day)	Review Reading to Date (20 - 40)		Review practices, equipment, materials and tools, concerned with clearing the site, setting up temp. facilities, surveying for const. and earth moving. (30)	Discuss preparation of a site - relate to lab experiences (15)				
69	Building the Structure (20)	Indicate the functions of structures - the major stages in construction - kinds of structures (15)	Review reading - clarify as necessary Explain commonality of practices and types of structures. Watch film for overview (30)	Discuss commonality and function of structures and practices (15)				
70	Setting Foundations (15)	Indicate functions of foundations, major steps in setting foundations (10)	Organize class for work - demonstrate preparation of materials (15)		Measure, cut - prepare materials, make forms (25)	Record activities (5)		
71	Making and placing forms (20)	Define terms - determine sequence of practices and list and associate tools and equipment (15)	Clarify terms, purposes, and describe methods of making and placing formwork (10) See overview film (10)		Continue making and placing forms (25)			
72	Preparing Foundation Materials (30)	Define terms - identify methods - list equipment tool used in preparing materials (15)	Clarify terms, Film: Preparation of Foundation Materials (10)		Continue making and placing forms. Set reinforcement (25)		Point out sequence of making formwork, assembly, setting reinforcement (5)	

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
73	Handling Foundation Materials (30)	Identify materials, steps, equipment and methods used - precautions necessary (20)	Review reading - clarify as necessary Demonstrate mixing, and placing and working, note precautions (15)		Simulate placing concrete on models Mix, transport and place concrete in forms, agitate - clean up (30)			
74	Bonding and Curing (25)	Define terms - list equipment - identify methods (15)		Discuss procedures, equipment, need for particular methods, control of moisture and temperature - discuss procedures of bonding and curing - clarify terms (15)	Prepare previous days work to receive new lift (layer) mix, transport, place, agitate, locate anchor bolts and plates (30)			
75	Removing Forms and Finishing (20)	Define terms - list practices, tools, equipment (10)	Review reading on bonding and curing and removal of forms - clarify as necessary (15)	Discuss procedures and equipment (15)	Check lab concrete for curing (5)	Answer related questions - removing forms and finishing (10)		
76	Building the Major Structural Elements (15)	Define terms - identify kinds of structure and major structural elements (15)	Clarify terms, needs, structural methods. Film overview Building major structural elements (15)		Strip formwork, clean concrete and forms - store forms clean lab. (20)	Answer related questions on curing and finishing foundations (10)		
77	Preparing Structural Materials (15)	Define terms - list equipment, tools, practices - associate tools with practices - identify common materials (15)	Clarify terms, practices - demonstrate methods of preparing materials (30)	Discuss methods of preparing materials (10)	Watch demonstration - get out materials (5)			

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
78 (Optional Day)		Identify the type of structure used in your home, also list the kinds of materials, equip. methods used in erecting the structure (30)		Discuss types of structure used in homes (20)		Answer related questions (5)	Organize for lab work - erecting the structural elements (20)	
79	Fabricating Components and Temporary Forms (15)	Identify tools, equipment and practices (10)	Review reading - clarify as necessary - demonstrate fabricating practices (15)	Structural elements (wood) Structural elements (steel) (10)	Layout & cut timbers for floors, frames, mix mortar and lay block, transfer, position and fix steel floor joists (20)			
80				Structural elements (bearing walls) (concrete & block) (10)	Layout & cut timbers for framing, prefabricate, lay block, position & fix vertical & horizontal steel members (30)	Answer related questions (5)		
81	Handling Components (30)	Define terms - associate tools & equipment (10)	Review reading - clarify as necessary - relate to lab experience (10)		Layout & cut wood frame, lay subfloor (work floor) mix mortar, lay block (30)	Answer related questions (5)		
82				Means of transferring and positioning (10)	Position & fasten frame walls (pre-fabricated in lab.) prepare - layout, cut, etc. roof members. (30)	Answer related questions (5)		

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83	Treating the Structural Elements (15)	Identify tools, equipment, and practices. (10)		Discuss work to date. Preparing materials - handling materials - assembling materials for major structural elements. (15)	Position and fasten roof members. (25)	Answer related questions. (5)		
84 (Optional Day)	Review Chapter 15, Building the Major Structural Elements (30)		Review and reinforce work to date - Building the Major Structural Elements. (20)	Refer to work done in lab. (25)				
85			Review the universality of practices covered to date - relate to any structure. Film:"Universality of Practices" (25)	Review universality of practices used in lab. - relate to any structure. (20)				
86	Installing Circulatory Systems (15)	Define terms in this context. Identify types of utilities and relate to structural types. (15)	Clarify terms, indicate the continuing nature of this practice. Film, overview, "Installing Circulatory Systems" (30)	Discuss circulatory systems and related problems. (10)		Answer related questions. (5)		
87	Installing Utilities and Mechanical Plant (15)	Indicate types of permanent utilities and mechanical plant. (10)	Review reading, classify as necessary Demonstrate the preparation of types of materials commonly used. (20)	Discuss problems relating to the installation of utilities and mechanical plant. (10)	Simulate practices on models. (10)	Answer related questions. (5)		

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
88	Preparing and Handling Materials and Components and Fastening and Jointing (30)	Define terms, identify methods of fastening, connecting, jointing, in this context. (15)	Clarify terms, demonstrate fastening in place, connecting, jointing. (15)		Prepare materials - wiring, ductwork, plumbing. (25)	Answer related questions. (5)		
89	Providing Temporary Equipment (15)	Define terms, list alternative methods of providing temporary equipment. (15)	Emphasize continuous set-up and breakdown of equipment in practice of building. (10)		Prepare materials, transfer, position, fasten in place, connect and join; wiring, plumbing, ductwork. (30)	Answer related questions. (5)		
90		Indicate when and where equipment may be needed and the procedure for meeting this need. (15)	Clarify terms, review needs for temporary equipment, its function, safety factors. (10)	Discuss means and needs of providing temporary equipment. (5)	Build simple scaffold as required by the "construct." Look at picture situations. Install last services by using temporary equipment; remove temporary equipment and store. (30)			
91	Finishing the Structure (15)	Define terms. Identify purposes, needs, and scope of enclosure. (15)	Introduce Finishing the Structure. Accent-buildings need to be enclosed. Other structures may be nearly complete with structural elements only. Film, overview, "Finishing the Structure." (30)	Discuss building enclosure (rough) types. (15)				
92	Enclosing the Structure (15)	Indicate types of materials commonly used for enclosure and their characteristics. (15)	Illustrate differences in types and sizes of materials being used in enclosure. Point out similarities of practices. Clarify terms. (15)	Discuss similarities of practices. (10)	Simulate enclosure practices on models. Simulate process with appropriate equipment. (10)	Answer related questions. (10)		

DAY.	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
93	Preparing, Handling and Assembling Components and Materials (20)	Define terms. Indicate methods and sequence. (15)	Methods of transferring, positioning, fastening. Organize for work on "construct." (25)	Hoisting, carrying, positioning, pinning, welding, bonding, coupling. (10)	Get out appropriate materials for rough finishing the "construct." (10)			
94			Demonstrate layout, cutting, forming, safety precautions. (10)		Layout, cut, form materials for "construct" rough finishing. (25)	Answer related questions. (10)		
95	Outside reading - "prefabricating"		Framing - prefabricating demonstration (10)		Prefabricating partitions, layout, cut, form materials. (25)	Answer related questions. (10)		
96		Sketch floor plan of your dwelling. Indicate which walls are major structural elements and those which are not. (25)	Demonstration: bricklaying and mortar mixing. (15)		Complete partitions transfer, position and assemble. Mix mortar, lay brick. (20)	Answer related questions. (10)		
97			Demonstration: assembly techniques (15)		Continue laying brick - mixing mortar, layout, cut, assemble rough surface components. (20)	Answer related questions, (10)		

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
98 (Optional Day)		Examine your dwelling, identify tools, equipment, used in preparing and assembling the materials used. (25)	Demonstration: fastening techniques (10)		Continue laying brick, fastening components. (20)	Answer related questions. (10)	Discuss problems as they arise; refer to homework problem. (5)	
99 (Optional Day)					Continue fastening components, bricklaying. (35)	Answer related questions. (10)		
100		Examine your dwelling and determine the means of enclosure and identify the practices used. (25)	Review Enclosing the Structure (rough finishing). Note universality of practices, refer to previous work. (15)	Discuss practices, sequences, materials, universality of practices. (20)	Clean up lab. (10)			
101	Review Enclosing the Structure (rough finishing) (25)			Discuss types of enclosures, and practices used. (15)	Look at pictures, discriminate between tools, equipment, and techniques. (20)	Answer related questions. (10)		
102	Completing the Structure (15)	Differentiate between the types and characteristics of materials in this context. Indicate scope and major steps. (15)	Review reading. Clarify as necessary. Watch film on completion of the structure for overview. (30)	Discuss scope and problems related to the completing of structures. (15)				

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
103	Preparing Subsurfaces and Materials (15)	Define terms. List means and equipment used in preparing subsurfaces. (10)	Preparing Subsurfaces. Demonstration: on keying and grounding. (10)	Preparing Subsurfaces. (10)	Keying subsurfaces, attaching grounds. Preparing subsurfaces. (20)	Answer related questions. (5)		
104				Differences in the nature of finish materials. (10)	Cut and install grounds - layout, cut, form materials for trimming. (25)	Answer related questions. (10)		
105				How to prepare materials for completing the structure (10)	Layout, cut, mix, materials and components. (25)	Answer related questions. (10)		
106	Trimming (20)	Define terms, describe methods and means. List equipment. (15)	Clarify terms. How to handle and fasten finish materials. Demonstration. (15)		Transfer, position materials, (pin) materials to "construct." Check for accuracy, fit, alignment. (20)	Answer related questions. (10)		
107					Continue fastening finish materials to "construct" (20)	Identify, associate finish materials, tools, procedures. (15)	Discuss problems involved in finishing. (10)	

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
108			Demonstrate practices used in Trimming, (pinning, bonding, etc.) (15)		Perform the acts of Trimming. (20)	Answer related questions. (10)		
109			Clarify where necessary. Demonstrate the various methods of coating and applying. (20)		Coat and apply paint, etc. (20)	Answer related questions. (5)		
110			Demonstrate as necessary: coating and applying. (10)		Coat and apply. (30)	Answer related questions. (5)		
111			Clarify where necessary. Note universality of practices, refer to previous work. (15)		Removing equipment and debris - cleaning up. (25)	Answer related questions. (5)		
112 (Optional Day)	Review Building the Structure (30)		Review Building the Structure. (15)	Discuss Building the Structure. Refer to models and lab. work. (30)				

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
113	Review Building the Structure (30)		Review major stages in building a structure. Illustrate major stages. Refer back to Preparation of Site and point out how clearing may come after construction, as well. (20)	Universality of practices related to any structure. Relate to preparing site and earlier work. (25)				
114	Completing the Site (15)	Define terms. Identify steps in completion. Give scope of work. Give purpose. (10)	Completing the Site. The third major phase in changing the form of materials. Clarify terms. Point out that many of the practices used have already been studied in Building the Structure & Preparing the Site. (20)	The need for completion of the site. What work is included. Look at pictures of typical completed sites. Point out and discuss the work done to accomplish the results shown. (20)		Answer related questions. (5)		
115	Landscaping (15)	Define terms. List practices. Give scope of the work. List included operations and associate with structure type. (10)	Need for landscaping. Film, overview, "Completing the Site" (25)	Discuss the scope of landscaping. (15)		Answer related questions. (5)		
116	Building Accesses (15)	Define terms. Identify applications. Identify relationships to broader context. (15)	Demonstration: Planning a Site (10)	Laying the base, laying the surface, layout, earth moving, handling material, stabilizing earth, making and placing formwork, setting reinforcing. (10)	Given a bounded site (map), students sketch out a plan showing location of accesses, features, and plantings. (20)	Design of landscape plan. (5)		
117	Building Features (10)	Identify applications Identify relationships to broader context. (15)	Review reading. Clarify where necessary. Demonstrate with model equipment where possible. (10)		Using previous plan, layout on model the accesses, features, and plantings. (10)	Revise layout plan. (10)	Suitability of features in relation to surrounding sites and total area. (15)	

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
118	Shaping and Finishing Earth (15)	Identify practices, scope and sequence of operations where applicable (15)	Review reading - clarify as necessary (10)	Discuss shaping & planting (10)	Using site model from previous lab make revisions as necessary (20)	Answer questions related - how would similar task be performed in the real world (5)		
119					Rotate model sites, plan sites as for day 62 (5)	Draw sketch plan showing location of accesses, features and planting (30)	Suitability of landscaping in relation to surrounding sites & total picture - revise layout on model (10)	
120	Removing Equip. and Debris (10)	Identify equip. which might be moved at this stage- give methods of removing debris (10)	Give directions as necessary for lab activity (5)		Simulate landscape work on models. Layout accesses, features & planting as specified on plan from previous days lab. (15)	Record the practices equip. etc., necessary to accomplish the same results in the real world. (15)	Discuss time involved in land- scape (growth of trees, etc.) and special problems (10)	
121	Removing Temp. Plant and Facilities (15)	Identify plant & equipment. Describe methods of removal (10)	Review the com- pletion of the site (15)	Discuss - the com- pletion of the site and associated problems (10)	Simulate removal of temp. plant & contractors equip. on model (15)	Answer related questions (5)		
122	Post Processing (30)	List parts of a structure which would be most likely to need repair & service (15)	Review reading - clarify as necessary - point out areas on lab "construct" which would eventu- ally need repair &/or maintenance (15)	Discuss, repair & maintenance - the need, the extent, the causes - dis- tinguish between alteration, repair installing & main- taining. (20)	Carry out mainten- ance on "construct" as directed (10)			

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
123			Give directions as necessary - review all aspects- post processing (15)	Commonality and differences of practices between production and post processing (15)	Complete "Maintenance" of construct - clean up (15)			
124 (Optional Day)				Review - discussion of work to date (10)	Observe & analyze pictures, determine elements in need of maintenance (10)	Record practices & equipment necessary to effect repairs. (10)	Discussion of their lab work (construct) (10)	Give evaluation of their lab work (5)
125			Refer to, clearing the site - give directions as nec. for lab work, look at film on site clearing - indicate this to be form of post-processing (20)	Discuss the value of conservation (materials - resources) (15)	Organize to remove construct (10)			
126	Summary of Changing the Form of Materials (15)	Answer related questions (10)	Review major stages - view film-synthesis "changing the form of materials" (15)	Discuss film & any outstanding problems (10)	Disconnect "construct" services - disassemble fittings - clean fittings - store fittings (15)	Answer related questions - (reducing & handling) (5)		
127	Worker Control - Material Handling (20)	Answer related questions on purpose, & methods - relate to lab work (15)	Give direction as necessary for lab work (5)		Remove trim, baseboards, finish floor, paneling, etc., clean, stockpile &/or store where possible. (30)	Answer related questions - (reducing & handling) (10)		

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
128	Separating, Combinning and Forming (25)	Identify and categorize related practices in changing the form of materials (30)	Give direction as necessary for lab work (5)	Answer questions raised as a result of lab activity. (5)	Remove sub-surfaces utilities, etc. - salvage when poss. (incl. plasterboard hangers, ductwork, piping etc.) (30)	Answer related questions (reducing and handling) (5)		
129			Give directions as necessary (5)	Answer questions (5)	Remove roof members - remove non-structural - remove partitions - disassemble, clean & stockpile (35)			
130			Give directions as necessary (5)	Discuss universality of practices throughout entire constr. process. (10)	Disassemble and/or break out structural elements (incl. "foundation") salvage where possible (30)			
131			Give directions Review entire process (15)		Clean up lab - leave "site" operational. (30)			
132	Review For Exam (30)		Review total process of production in construction (15)	Production in construction processes and practices (30)				

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
133								TEST
134								TEST
135 (Optional Day)								TEST

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
136	Introduction to Working in Industry (25)	Study Questions (15)	Film: "The Worker in Industry" (15)	1. Questions on reading assignment. (5) 2. Questions on principal points of film. (5) (10)	Distinguish between manufacturing and construction workers and non-industrial workers from a prepared list. (10)	Record classification of workers (5)	Questions on classification based on projected accurate listing. (5)	
137	Hiring the Right Man For the Right Job in Construction (15)	Study questions on hiring (10)	1. Illus. lecture on purpose, source, and content of a hiring requisition. (10) 2. Assignment to collect news articles and employment adds for bulletin board. (10) (20)	Questions on assignment (5)	Distinguish between types of construction workers - both production and others (15)	Record types of workers (5)		
138	Recruiting the "In Crowd" (20)	Study questions on hiring (5)		Importance of employer applying for work at proper time and place (15)	Review hiring requisition for general construction foreman and begin analysis of 5 applicants files for position (30)			
139	Selecting Round Pegs for Round Holes (25)	Study questions on the purpose, source, and content of personnel records (10)	Illustrated lecture on interview techniques and introduction of role playing. (15)		Each of four teams select foreman from the 5 applicants (based on requisition and folders) (10) Review hiring requisition for skilled worker. (5) (15)	Record individual selected and why. (5)	Justification of selection (10)	
140	Fitting the Pegs to the Holes (10)	Study questions on Inducting (5)	Film: "Good and Poor Induction Methods" (contrast) (15)		Role play a hiring interview and an induction situation (30)			

DAY	TEXT READING (time)	WORKBOOK	PRESENTATION	DISCUSSION	LAB. ACTIVITY	LAB. WORKBOOK	DISCUSSION	EVALUATION
141		Case Study on Hiring - Draw conclusions (30)		Questions on case study (5)	Each of four teams select 2 skilled workers (based on hiring requisition and records of 7 applicants) (20)	Record individual selected and why (5)	Justification of selections (15)	
142	Keeping Up With Progress (35)	Select from different training situations if training would be on or off the job; formal or informal (10)		Questions on homework (10)	Company expansion Hire: 3 unskilled workers; (based on hiring requisitions and records of 7 applicants (15)	Record individual selected and why (5)	Justifications of selections (15)	
143		An open ended case study in Training (to reflect on hiring) (20) Draw conclusions from case study(10) (30)			New technology. Develop training program for skilled workers(25) Determine which already employed employees should be trained (2 men) (10) (35)	Outline training program. (5) Record individual selected and why (5)		
144	The Satisfied Employee in the Efficient Company (25)	Study questions (10)	1. Film: "Working Conditions and Their Impact on Employees" (15) 2. Illus. lecture on the working agreement. (10) (25)		One team outline management contract proposal. One team outline labor contract proposal (15)	Record outline (5)		
145	Economic Rewards of Working (20)	List economic considerations that should be considered in contract to be drawn up in class (10)			1 Each team draw up proposed contract (economic only) (20) 2. Negotiate settlement (15) (35)	1. Record proposal 2. Record settlement (10)		

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
146	The Physical Working Environment (20)	List environmental considerations to be considered in contract to be drawn up in class (10)	Film: "The Roll of Drums" (importance of worker safety) (15)		1. Each team draw up proposed contract (physical environment) 2. Negotiate settlement (20)	1. Record proposal 2. Record settlement (10)		
147	The Social Working Environment (20)	Study questions on reading assignment (10)			1. Each team draw up proposed contract (social environment) 2. Negotiate settlement 3. Review total contract (35)	1. Record proposal 2. Record settlement (10)		
148 (Optional Day)		Case study that sets stage for arbitration of individual grievance (20)	Review arbitration (15)		Arbitrate individual grievance (20)	Outline settlement (10)		
149		Case study on working (20) Draw conclusions to case study (10) (30)	Film: "Strike?" Open-ended film to bring up-to-date a problem which has caused a strike (15)	Arbitration (omit if day 148 is covered)	Arbitrate settlement to strike (20)	Outline settlement (10)		
150	Career Patterns in Construction (35)	Study questions Types and purposes of advancement practices (10)		Questions on reading assignment (10)	Company expansion: New tradesman to be selected from the ranks; select 2 individuals to be apprenticed to positions (15)	Record individuals selected and why (10)	Student selections and reasons (10)	

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
151		Case study on advancing (to reflect on hiring and training) (20) Draw conclusion to case study. (10) (30)	Film. "Social and Economic Effects of Various Career Patterns on Individual Construction Employees." (15)		Foreman to retire. Determine method of replacement (hire new or advance from within). If advanced from within, advance others and hire replacement at necessary level. (20)	Outline: 1. Method used 2. Who selected (at each level) 3. Justify (10)		
152		Write letter of application for job in construction from ads collected on bulletin board. Write as though the individual has the qualifications sought. (30)			Reduction in work force. Each level of employment must be reduced by one individual. Select method and individuals. (30)	Record individuals selected and why. (5)	Methods used by students to reduce work force. (10)	Review letter.
153 (Optional Day)		Case study on Working in Construction (to reflect entire unit) (20) Draw conclusion to case study. (10) (30)			Review simulated career patterns of employees hired in previous activity and relate to prior decisions in hiring, training, working, and advancing. (30)		Implications of seemingly small decisions regarding personnel. (15)	
154	Review reading assignments in Unit IV. (25)	Review study questions on Unit IV. (15)		Review of material covered in Unit IV, "Working in Construction" (20)			Review of material covered in Unit IV section of Lab. Manual. (25)	
155	Further review of Unit IV reading assignments. (15)	Review of case studies and conclusions. (15)						Test (45)

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
156	Introduction to Community Development (30)	Study questions. (5)	Illustrated lecture: 1.Review reading, clarify terms, emphasize industrial site factors. 2.Introduce game concept, explain gameboard and team structure. (10)	1.Discuss local industrial plant location. 2.Present and discuss News Report No. 1. (10)	1.Organize class into four teams with team captains, assign townships to teams, distribute original team capital. 2.Class locates industrial plant. (10)	Complete programmed assignment. (10)		
157	Service Construction (20)	1.Study questions. 2.Simple calculation of utility pipe size. (10)	Illustrated lecture: 1.Review reading, clarify terms, emphasize sewer and water factors. 2.Show pictures of water and sewer plants, water towers, and utility pipes. (10)	1.Discuss local utility facilities. 2.Present and discuss News Report No. 2. (10)	Class locates water plant, sewer plant, and utility pipes. (5)	Complete programmed assignment. (15)		
158	Manpower and Housing (20)	1.Study questions. 2.Simple calculation of workers, population and housing market. (10)	Illustrated lecture: 1.Review reading, clarify terms, emphasize single-family housing factors. 2.Show pictures of well-designed single-family housing groups at different densities. (5)	1.Discuss local housing structure. 2.Present and discuss News Report No. 3. (10)	Each team develops five tracts of single-family housing in its township. (5)	Complete programmed assignment. (15)	Present and discuss News Report No. 4. (5)	
159	Community Flood Protection (15)	1.Study questions. 2.Lab Manual: complete programmed assignment. (20)			Each team develops ten tracts of single-family housing in its township. (5) Class selects flood protection method. (5)	Complete programmed assignment. (10) Complete programmed assignment. (10)	Present and discuss News Report No. 5. (5) Present and discuss News Report No. 6. (5)	
160	Street Construction (20)	1.Study questions. 2.Lab Manual: complete programmed assignment. (15)			Each team develops five tracts of single-family housing in its township. (5) Class revises street system. (5)	Complete programmed assignment. (10) Complete programmed assignment. (15)	Present and discuss News Report No. 7. (5)	

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
161	School Construction (20)	1. Study questions. 2. Simple calculation of school need. (10)	Illustrated lecture: 1. Review reading, clarify terms, emphasize location factors 2. Show pictures of well-designed schools and good school-community relationships. (10)	1. Discuss local school location. 2. Present and discuss News Report No. 8. (10)	1. Each team locates elementary school in its township. 2. Class locates jr.-sr. high school. (5)	Complete programmed assignment. (15)		
162	Building Local Shopping Centers (20)	Study questions. (5)	Illustrated lecture: 1. Review reading, clarify terms, emphasize location and need factors. 2. Show pictures of well-designed local shopping centers & "strip" development. (10)	1. Discuss local shopping in students community. 2. Present and discuss News Report No. 9. (10)	Each team locates a local shopping center in its township. (5)	Complete programmed assignment. (15)		
163	High Density Housing (20)	1. Study questions. 2. Simple calculation of housing type by density. (10)		Present and discuss News Report No. 10. (5)	Class expands community utility system. (5)	Complete programmed assignment. (30)		
164			Illustrated lecture: 1. Review reading, clarify terms, emphasize high density housing need and location factors. 2. Show pictures of well-designed, high density housing of a number of types and densities. (10)	1. Discuss local high density housing. 2. Present and discuss News Report No. 11. (10)	Each team develops a maximum of five tracts for high density housing. (5)	Complete programmed assignment. (15)		
165	Community Recreation (20)	1. Study questions. 2. Simple problems in park and playground location. (10)		Present and discuss News Report No. 12. (5)	Each team revises one community facility: (1) water (2) sewer (3) streets (4) schools (5)	Complete programmed assignment. (30)		

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
166			Illustrated lecture: 1. Review reading, clarify terms, emphasize recreation type distinctions. 2. Show pictures of well-designed recreation facilities of each type. (10)	1. Discuss local recreation facilities. 2. Present and discuss News Report No. 13. (10)	1. Each team locates playgrounds and neighborhood parks in its township. 2. Class locates playfield and community park. (5)	Complete programmed assignment. (15)		
167	Central Business Construction (20)	Study questions. (5)	Illustrated lecture: 1. Review reading, clarify terms, emphasize location factors. 2. Show pictures of well-designed examples of central business construction. (10)	Present and discuss News Report No. 14. (5)	Each team locates one tract of central business. (5)	Complete programmed assignment. (20)		
168	Economic Loss and Community Development (20)	Study questions. (5)		Present and discuss News Report No. 15. (5)	Each team estimates deterioration losses in its township. (5) Each team estimates flood losses in its township. (5)	Complete programmed assignment. (10) Complete programmed assignment. (10)	Present and discuss News Report No. 16. (5)	
169	Management of Community Development (20)	Study questions. (5)	Illustrated lecture: 1. Review reading, clarify terms, emphasize need for planning. 2. Explain zoning, subdivision control, master plan. 3. Show examples of planning maps and reports (15)	Discuss local community planning organization and development control. (10)	Teams calculate their profit (or loss) from development in their township and community costs. (5)	Complete programmed assignment. (10)		
170	The Community and Its Region (10)	Study questions. (5)	Film: "Key to the Future" (35)	Discuss the regional framework for construction in context of the film. (5)				